DPD-2156-60

14 March 1960

MEMORANDUM FOR : Chief, Development Branch, DPD

SUBJECT : Possible Use of Proposed Camera System for OXCART

25X1A 1. Some time ago (late 1959), [redacted] in discussions with
25X1A the undersigned indicated that [redacted] had been thinking of a possible follow-on system for the CHALICE program; and, asked if we were formulating any plans along this line and if so, would we like a camera proposal from them. Although the OXCART program (then known
25X1A as GUSTO) was well along, no indication was given to [redacted] that
25X1A we were considering a follow-on program. [redacted] was informed that if they desired to submit a proposed camera system, we would certainly review it in light of any future systems.

25X1A 2. On 16 February while visiting [redacted] presented a proposal to me for a camera system known as the HR-74. This proposal, dated 29 January 1960, was for a camera with an 84 inch refractor type lens using mirrors to fold the optics. The size of the camera proposed was 85½ inches long, 38½ inches wide by 59½ inches high.

25X1A 3. I discussed the above referenced proposal with [redacted] in light of its possible use in the J75 U-2 aircraft as an improved camera system. It was pointed out that the camera was too large to fit in the present "Q" bay and therefore was entirely unsatisfactory. It was
25X1A recommended, or rather suggested, that [redacted] review their proposal with the view to reducing focal length to 60 or 72 inches using telephoto type optics and keeping system weight to that of the present B and still retain its growth potential for a future system such as indicated
25X1A by the proposal. If [redacted] does so, I would be willing to discuss the possibilities of building such a system with other personnel at Project Headquarters.

25X1A 4. On 8 March, [redacted] visited Project Headquarters and presented their reworked proposal for a camera system known as the HR-74D. This camera would have a 48 or 60 inch telephoto refractor type lens. The camera would be 64 inches in length, 31 3/4 inches in width, and the

height would be 52½ inches. The camera loaded would weigh 550 pounds. Due to the increased resolution in the optical system (120 plm), HYCON is indicating a ground resolution of 0.78 to 1.31 feet. Although the preliminary design is for the camera to fit in the U-2 "Q" bay, it will also fit in the "Q" bay of the GECART vehicle. (See attachment #1) In reality, the proposed HR-74 B camera is a product improved B configuration. Shutter, film shuttle, film transport principles, all have been proven as sound approaches through their use on the B configuration.

25X1A 5. Although [redacted] has not covered bay environment in their proposal, it is believed that the problem would not be as great with the 74B camera as with the P & E system. I have suggested to [redacted] that they consider 25X1A using in between the lens or a focal plane type shutter over the camera window to reduce the cycling rate load on their proposed shutter. This would be possible since camera windows look as if they would be rather small (approximately 7 inches square) and the shutter as pointed out by [redacted] in their discussions on shutters would aid in control of 25X1A the bay environment.

25X1A 6. [redacted] has indicated a study phase for the above system would require approximately 90 to 120 days and cost about [redacted] They 25X1 also indicated that one complete flyable prototype design could be 25X1 built for a little under [redacted] Time to complete would be 11 to 12 months. Review of the complexity and the unknowns associated with 25X1A [redacted] camera design, it is felt Headquarters should give consideration to building an HR-74B camera configuration and testing it in a J75 U-2. 25X1A Such an approach could be considered a back-up system should [redacted] camera fail to achieve their design goals.

7. The suggested approach for designing and manufacturing of the above proposed prototype would be to use the M & O facilities at [redacted] 25X1A and fund for the development under the present CHALICE program. In 25X1A this manner, it is believed that one prototype system could be obtained 25X1 by an increase of about [redacted] for FY 61 at [redacted]

25X1A [redacted]
Major USAF

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